

Art Unit: 2863

1. When preparing this Office action the examiner has consider the instant application to include:

A) the Oath/Declaration filed on 20 October 2005 is acceptable to the examiner;

B) the Abstract filed on 17 March 2008 is acceptable to the examiner;

C) figures 1(A), 1(B), 2(A), 2(B), 3, 4(A), 4(B), 4(C), 5, 6(A), 6(B), 7(A), 7(B), 8(A), 8(B), 9, 10, 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 13, 14, 15(A), 15(B), 15(C), 15(D), 16, 17, 18, 19, 20, 21, 22(A), 22(B) & 22(C) of the set of drawings containing 26 sheets of 40 figures comprising figures 1(A), 1(B), 2(A), 2(B), 3, 4(A), 4(B), 4(C), 5, 6(A), 6(B), 7(A), 7(B), 8(A), 8(B), 9, 10, 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 13, 14, 15(A), 15(B), 15(C), 15(D), 16, 17, 18, 19, 20, 21, 22(A), 22(B) & 22(C) as presented in the set of drawings filed on 06 September 2006 where figure 1(A), 1(B), 2(A), 2(B), 3, 4(A), 4(B), 4(C), 5, 6(A), 6(B), 7(A), 7(B), 8(A), 8(B), 9, 10, 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 13, 14, 15(A), 15(B), 15(C), 15(D), 16, 17, 18, 19, 20, 21, 22(A), 22(B) & 22(C) of the above set of drawings are acceptable to the examiner;

D) the substitute written description as filed on 17 March 2008; and

E) the set of claims as filed on 17 March 2008, with an incorrect status for currently amended claim 13.

2. Applicant's claim for the benefit of an earlier filing date pursuant to 35 U.S.C. 120 is acknowledged.

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

4. The examiner has considered the prior art cited in the base applications.

5. In view of the indication of allowable subject matter over the prior art of record, note below, the restriction requirement mailed 06 April 2007 and applicant's subsequent election of species 1, that is claims 1-17 and the withdraw of species 2 that is claims 18-22 is withdrawn and claims 18-22 are rejoined.

5.1 In view of this an action on the merits of pending claims 1-11, 13-15 & 17- 22 follows.

6. The drawings as filed on 06 September 2006 are objected to because:

A) it is noted that while the set of drawing includes figures that have been designated as figures 4(C), 6(A), 6(B), 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 15(A), 15(B), 15(C), 15(D), 22(A), 22(B), 22(C), the set of drawings clearly lacks figures that have been designated as figures (C), 6, 11, 12, 15, 23 & (D) as have been explicitly referenced or implied with in the written description, see for example the paragraphs located:

(1) at page 40, lines 18-24, of the substitute specification filed 17 March 2008, "Next, assumption ... to Figs. 4(A)-(C) and 5. Fig. 4(A) is ... and nodes.";

(2) at page 46, lines 5-8, of the substitute specification filed 17 March 2008, "Hereinafter, matching ... to Fig. 6. Fig. 6(A) is ... coupled together.";

(3) between page 57, line 15, and page 58, line 6, of the substitute specification filed 17 March 2008, "In the invention, as ... Figs. 10, 11(A)-(C), 14, 16, and 20. The ... internal bus 49.";

(4) between page 58, line 23, and page 58, line 6, of the substitute specification filed 17 March 2008, "Furthermore, ... to Figs. 10 to 23. Particularly, Figs. 10 to 13 show a first embodiment of the invention, Figs. 14 and 15(A)-(D) are views ... Figs. 20 and 23 are views ... invention."; and

(5) at page 68, lines 1-12, of the substitute specification filed 17 March 2008, "Although a clamp ... in Figs. 15(A)-(D) is not ... and the like.". Note the proposed changes below.

6.1 Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

Art Unit: 2863

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The substitute disclosure as filed 17 March 2008 is objected to because of the following informalities:

A) the written description continues to make explicit references to figures that do not appear with in the set of drawings, since it is noted that while the set of drawing includes figures that have been designated as figures 4(C), 6(A), 6(B), 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 15(A), 15(B), 15(C), 15(D), 22(A), 22(B), 22(C), the set of drawings clearly lacks figures that have been designated as figures (C), 6, 11, 12, 15, 23 & (D) as have been explicitly referenced or implied with in the written description, see for example the paragraphs located:

(1) at page 40, lines 18-24, of the substitute specification filed 17 March 2008, "Next, assumption ... to Figs. 4(A)-(C) and 5. Fig. 4(A) is ... and nodes.";

(2) at page 46, lines 5-8, of the substitute specification filed 17 March 2008, "Hereinafter, matching ... to Fig. 6. Fig. 6(A) is ... coupled together.";

(3) between page 57, line 15, and page 58, line 6, of the substitute specification filed 17 March 2008, "In the invention, as ... Figs. 10, 11(A)-(C), 14, 16, and 20. The ... internal bus 49.";

(4) between page 58, line 23, and page 58, line 6, of the substitute specification filed 17 March 2008, "Furthermore, ... to Figs. 10 to 23. Particularly, Figs. 10 to 13 show a first embodiment of the invention, Figs. 14 and 15(A)-(D) are views ... Figs. 20 and 23 are views ... invention."; and

(5) at page 68, lines 1-12, of the substitute specification filed 17 March 2008, "Although a clamp ... in Figs. 15(A)-(D) is not ... and the like.". Note the proposed changes below.

B) applicant's continued references to particular claims with in the text of the written description note:

(1) the reference to pending claims 13, 17, 21 & 22 and cancelled claims 12 & 16 in the paragraph located at page 58, lines 17-22, of the substitute

specification filed 17 March 2008, “The twist ... corresponds to claims 13, 17, and 22, and ... claims 12, 16, and 21. The twist ... or a LAN.”;

(2) the reference to claims 10 & 11 in the paragraph located at page 68, lines 1-12, of the substitute specification filed 17 March 2008, “Although a clamp ... (corresponding to claim 10). In this ... (corresponding to claim 11). This is ... the like.”; and

(3) the reference to claim 15 in the paragraph located at page 73, lines 19-22, of the substitute specification filed 17 March 2008, “Although the ... axis (corresponding to claim 15).”;

are confusing because as the instant application is prosecuted, the referenced claims may be cancelled and/or renumber at the time of allowance and hence these explicit references to a particular claim will not correspond to the correct claim. Note the proposed changes below.

C) the disclosure continues to lack a statement of –We claim:–, as required by Office policy as set forth in MPEP 608.01(m).

D) in view of the above objections it is suggested that the following paragraphs be amended as indicated:

(1) at page 40, lines 18-24, of the substitute specification filed 17 March 2008:

Next, assumption conditions on which the invention is premised, a used theory, and fundamental expressions will be briefly described with reference to Figs. ~~4(A)-(C)~~ 4(A)-4(C) and 5. Fig. 4(A) is a view showing the appearance of a wire harness, Fig. 4(B) is a view showing a state of digitizing the wire harness of Fig. 4(A), and Fig. 4(C) is a view expressing the wire harness of Fig. 4(A) by beam elements and nodes. Fig. 5 is a view illustrating degrees of freedom in a wire harness expressed by beam elements and nodes.

(2) at page 46, lines 5-8, of the substitute specification filed 17 March 2008:

Hereinafter, matching conditions and balancing conditions will be described with reference to ~~Fig. 6~~ Figs. 6(A)-6(B). Fig. 6(A) is a view expressing a wire harness by three beam elements, and Fig. 6(B) is a view showing a state where the three beam elements of Fig. 6(A) are coupled together.

(3) between page 57, line 15, and page 58, line 6, of the substitute specification filed 17 March 2008:

In the invention, as shown in Fig. 9, a well-known personal computer which basically includes a microcomputer 41, an input device 42, a display device 43, a print device 44, a storage device 45, a read device 46, and a communication interface 47 may be used. The microcomputer 41 includes: a CPU 41a (Central Processing Unit); a ROM 41b which stores a boot program and the like; and a RAM 41c which temporarily stores various process results. The input device 42 is a keyboard through which the values are input, a mouse, or the like, the display device 43 is a CRT on which the process results are displayed, or the like, and the print device 44 is a printer which prints out the process results. The storage device 45 is a hard disk drive which stores application programs and the process results. The read device 46 is a device for reading a twist angle calculation program 48a which is stored in a storage medium 48 such as a CD or a DVD, and which indicates a process procedure shown in Figs. 10, ~~11(A)-(C)~~ 11(A)-11(C), 14, 16, and 20. The communication interface 47 is a modem board or the like which conducts data communication with an external device with using, for example, a LAN line. These constituent components are connected to one another through an internal bus 49.

(4) at page 58, lines 17-22, of the substitute specification filed 17 March 2008:

The twist angle calculation program 48a which is stored in the storage medium 48 ~~corresponds to claims 13, 17, and 22~~, and a processing apparatus such as a personal computer in which the twist angle calculation program 48a is installed ~~corresponds to claims 12, 16, and 21~~. The twist angle calculation program 48a may be provided not only by the storage medium 48 but also through a communication line such as the Internet or a LAN.

(5) between page 58, line 23, and page 58, line 6, of the substitute specification filed 17 March 2008:

Furthermore, process procedures in embodiments of the invention will be described with reference to Figs. ~~10 to 23~~ 10, 11(A), 11(B), 11(C), 12(A), 12(B), 12(C), 12(D), 12(E), 13, 14, 15(A), 15(B), 15(C), 15(D), 16, 17, 18, 19, 20, 21, 22(A), 22(B) and 22(C). Particularly, Figs. ~~10 to 13~~ 10, 11(A), 11(B), 11(C), 12(A), 12(B), 12(C),

12(D), 12(E) and 13 show a first embodiment of the invention, Figs. 14 and ~~15(A)-(D)~~ 15(A)-15(D) are views showing a second embodiment of the invention. Figs. 16 to 19 show a third embodiment of the invention, and Figs. ~~20 and 23~~ 20, 22(A), 22(B) and 22(C) are views showing a fourth embodiment of the invention.

(6) at page 68, lines 1-12, of the substitute specification filed 17 March 2008:

Although a clamp that may produce a twist in the trunk wire of the wire harness which is exemplarily shown in Figs. ~~15(A)-(D)~~ 15(A)-15(D) is not attached to the trunk wire, twist angles in a wire harness to which also a clamp that may produce a twist in such a trunk wire together with branch wires is attached can be similarly calculated (~~corresponding to claim 10~~). In this case, for example, an angle such as shown in the first embodiment which is formed by a clamp axis and the reference plane 6 is obtained as a twist angle. This is effective in design of a jig plate which further matches the actual state, production of a wire harness, and the like. Similarly, also twist angles in a wire harness in which only the clamps are attached to a trunk wire can be calculated (~~corresponding to claim 11~~). This is effective in design of a jig plate for a wire harness in which a large number of clamps are used, production of such a wire harness, and the like.

(7) at page 73, lines 19-22, of the substitute specification filed 17 March 2008:

Although the above description is focused on the twist angles of the clamps, also twist angles in the branch nodes N5, N10, and N16 of the branch wires 100b1 to 100b3 can be similarly obtained on the basis of the virtual clamp axis and the reference axis (~~corresponding to claim 15~~).

7.1 Appropriate correction is required.

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8.1 Claims 1-11, 13-15 & 17-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Art Unit: 2863

8.1.1 It is noted that one of ordinary skill at the time the invention was made would fairly and reasonably recognize that the disclosure presents a disclosed substantial and credible utility for the invention of:

A) process/method claims 1-11, 14, 15 & 18-20 as a process/method comprising a sequence of steps/actions to perform functions that when taken as a whole provide the useful and beneficial function of determining the “twist angel” of a wire-like structure/bundle;

B) machine/system/apparatus claim 21 as a machine comprising one or more structures to perform functions that when taken as a whole achieve the useful and beneficial function of determining the “twist angel” of a wire-like structure/bundle; and

C) manufacture/article/item claims 13, 17 & 22 as a manufacture defined by the characteristics/features/components of the manufacture/article that when taken as a whole define the manufacture to provide the useful and beneficial function of determining the “twist angel” of a wire-like structure/bundle.

8.1.2 It is further noted that one of ordinary skill at the time the invention was made would fairly and reasonably recognize that as recited/implied by the claims, the invention of:

A) claims 1-11, 14, 15 & 18-20 when taken as a whole are directed to a process/method that is intended to achieve the claimed utility of determining the “twist angel” of a wire-like structure/bundle;

B) claim 21 when taken as a whole is directed to a machine that is intended to achieve the claimed utility of determining the “twist angel” of a wire-like structure/bundle; and

C) claims 13, 17 & 22 when taken as a whole is directed to a manufacture/article/item that is intended to achieve the claimed utility of determining the “twist angel” of a wire-like structure/bundle.

8.1.3 In regard to each of the pending claims while taking each claim as a whole and interpreting the claims as the claims could fairly and reasonably be interpreted by one of ordinary skill at the time the invention was made as guided by the written description, it is noted that one of ordinary skill at the time of the invention could fairly and reasonably make the following observations in regard to the interpretation of each of the pending claims.

Art Unit: 2863

8.1.3.1 In regard to the recited utility of independent/base claims 1, 5, 13, 14, 15, 17, 18, 20, 21 & 22 it is noted that one of ordinary skill at the time the invention was made would fairly and reasonably recognize that these claims recite an intended field of utility for the invention recited as a method in claims 1, 5, 14, 15, 18 & 20, a article/machine in claims 13, 17 & 22 and as a machine in claim 21 that provides the functions of determining the “twist angel” of a wire-like structure/bundle.

8.1.3.2 In regard to the limitations of independent/base claim 1, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “deformed shape model”, that describes the main wire bundle of a wire-like structure as a series of one or more beam elements/sections that are clamped with clamp structures at predetermined locations and a clamp axis at each location of a clamp and/or branch of a sub wire of the sire-like structure axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “reference shape model”, that describes the wire-like structure as a couple member of one or more beam elements and further includes reference axis at each location of a clamp and/or branch of a sub wire of the sire-like



structure axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a shape of the wire like structure by using a finite element analysis in order to considering the shape and material properties of the wire like structure while “deforming the reference shape model” and superimposing the “deformed reference shape model” on the “deformed shape model””, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fourth data/information representing a “twist angle” by evaluating the “deformed reference shape model” to determine the resulting angle formed between the “reference axis” and the “clamp axis” and/or “virtual clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being

provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

E) the fifth action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting, in an unspecified manner, the determined “twist axis””, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 1 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.3 Regarding the additional subject matter recited as dependent claims 2 & 3, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed subject matter as being directed to both (A) nonfunctional descriptive material that does not go beyond merely defining the nature/source of the recited data/information that is to be used when performing the recited processing; and (B) functional descriptive material that does not go beyond defining the nature of the steps/actions that are used when performing the recited

functions of processing or gathering of data/information and hence does not alter the statutory nature of the invention recited as the invention in the base claims.

8.1.3.4 Regarding the additional subject matter recited as dependent claim 4, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed subject matter as being directed to nonfunctional descriptive material that does not go beyond merely defining the nature/source of the recited data/information that is to be used when performing the recited processing and hence does not alter the statutory nature of the invention recited as the invention in the base claims.

8.1.3.5 In regard to the limitations of independent/base claim 5, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 5 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “finite element model” of a wire like structure by describing the wire-like structure as a series of one or more coupled elastic beam elements/sections”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 5 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “reference shape in a plane” of the wire like structure in a plane by using a finite element model that considers the shape and material properties of the wire-like structure in order to deform the wire-like structure to the reference shape”,

since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 5 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “twist angle” as the angle formed between the plane and the sub wire bundle structures”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 1 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting, in an unspecified manner, the determined “twist axis””, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as

positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 5 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.6 Regarding the additional subject matter recited as dependent claims 6, 7, 10 & 11, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed subject matter as being directed to both (A) nonfunctional descriptive material that does not go beyond merely defining the nature/source of the recited data/information that is to be used when performing the recited processing; and (B) functional descriptive material that does not go beyond defining the nature of the steps/actions that are used when performing the recited functions of processing or gathering of data/information and hence does not alter the statutory nature of the invention recited as the invention in the base claims.

8.1.3.7 Regarding the additional subject matter recited as dependent claims 8 & 9, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed subject matter as being directed to nonfunctional descriptive material that does not go beyond merely defining the nature/source of the recited data/information that is to be used when performing the recited processing and hence does not alter the statutory nature of the invention recited as the invention in the base claims.

8.1.3.8 In regard to the limitations of independent/base claim 13 it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the structure recited in manufacture/article claim 13 as being directed to nothing more than a positive recitation of the structure of a memory that has the characteristic feature of containing a program or code or instructions as “non-functional descriptive material” that is intended to perform a data/information gathering/processing functions of:

(1) generating first data/information representing a “deformed shape model”, that describes the main wire bundle of a wire-like structure as a series of one or more beam elements/sections that are clamped with clamp structures at predetermined locations and a clamp axis at each location of a clamp and/or branch of a sub wire of the wire-like structure axis;

(2) generating second data/information representing a “reference shape model”, that describes the wire-like structure as a couple member of one or more beam elements and further includes reference axis at each location of a clamp and/or branch of a sub wire of the wire-like structure axis;

(3) generating third data/information representing a shape of the wire like structure by using a finite element analysis in order to considering the shape and material properties of the wire like structure while “deforming the reference shape model” and superimposing the “deformed reference shape model” on the “deformed shape model”;

(4) generating fourth data/information representing a “twist angle” by evaluating the “deformed reference shape model” to determine the resulting angle formed between the “reference axis” and the “clamp axis” and/or “virtual clamp axis”; and

(5) outputting, in an unspecified manner, the determined “twist axis”, since as one of ordinary skill at the time the invention was made would fairly and reasonably recognize the recited invention lacks a positive recitation of any structure that could implement the functions of the recited program or code or instructions stored on the media so as to provide a concrete and tangible practical and substantial credible utility because the recited “computer readable media” can not by itself realize the function of the recited program.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 13 when taken as a whole as being directed to nothing more than a manufacture/article that is intended to be a machine/process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical

application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.9 In regard to the limitations of independent/base claim 14, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a branching axis of a sub wire bundle at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “main wire reference shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a first reference axis for a sub wire bundle at the location branch node”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2)

is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “first twist angle of the main wire” formed by the difference between the first reference axis and the branch axis after having used finite element analysis to consider the shape and material properties of the wire like structure and after superimposing the deformed shape mode on the main wire member”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fourth data/information representing a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a clamp axis of a sub wire bundle at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any



specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

E) the fifth action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fifth data/information representing a “sub wire reference shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a second reference axis at the location of a clamp”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

F) the sixth action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating sixth data/information representing a “second twist angle of the sub wire” formed by the difference between the second reference axis and the clamp axis after having used finite element analysis to consider the shape and material properties of the sub wire like structure and after superimposing the deformed sub wire shape mode on the deformed sub wire shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one

of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

G) the seventh action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating seventh data/information representing a “twist angle” by correcting the determined second twist angle based on the first twist angle in order to obtain the angle formed by the first reference axis and the clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

H) the eighth action performed as recited in process claim 14 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting, in an unspecified manner, the determined “twist axis” between the first reference axis and the clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 14 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of

the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.10 In regard to the limitations of independent/base claim 15, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a series of one or more coupled beam elements/sections and a first branch axis of a sub wire bundle at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “main wire reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been obtained by straight stretching a main wire member with out twisting and a first reference axis at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing

that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “first twist angle of the main wire” between first reference axis and the first branch axis by using finite element analysis to consider the shape and material properties of the wire like structure and superimposing a deformed main wire reference shape mode on the main wire deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fourth data/information representing a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a second branch axis of a sub wire member at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of

the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

E) the fifth action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fifth data/information representing a “sub wire reference shape model”, that describes the sub wire member of the wire-like structure as a coupled series of one or more reference beam elements/sections of straight stretching of the main wire structure with out twisting and a second reference axis at the location of a branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

F) the sixth action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating sixth data/information representing a “second twist angle” of the sub wire member as the angle between second reference axis and the second branch axis by using finite element analysis that considers the shape and material properties of the wire like structure and superimposing a deformed sub wire reference shape mode on the sub wire deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or

externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

G) the seventh action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating seventh data/information representing a “twist angle” by correcting the determined second twist angle based on the first twist angle in order to obtain the angle formed by the first reference axis and the second branch axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

H) the eighth action performed as recited in process claim 15 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting, in an unspecified manner, the determined “twist axis” between the first reference axis and the second branch axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 15 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.11 In regard to the limitations of independent/base claim 17 it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the structure recited in manufacture/article claim 17 as being directed to nothing more than a positive recitation of the structure of a memory that has the characteristic feature of containing a program or code or instructions as “non-functional descriptive material” that is intended to perform a data/information gathering/processing functions of:

(1) generating first data/information representing a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a branching axis of a sub wire bundle at the location of a branch;

(2) generating second data/information representing a “main wire reference shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a first reference axis for a sub wire bundle at the location branch node;

(3) generating third data/information representing a “first twist angle of the main wire” formed by the difference between the first reference axis and the branch axis after having used finite element analysis to consider the shape and material properties of the wire like structure and after superimposing the deformed shape mode on the main wire member;

(4) generating fourth data/information representing a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a

coupled series of one or more beam elements/sections and a clamp axis of a sub wire bundle at the location of a branch;

(5) generating fifth data/information representing a “sub wire reference shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a second reference axis at the location of a clamp;

(6) generating sixth data/information representing a “second twist angle of the sub wire” formed by the difference between the second reference axis and the clamp axis after having used finite element analysis to consider the shape and material properties of the sub wire like structure and after superimposing the deformed sub wire shape mode on the deformed sub wire shape model;

(7) generating seventh data/information representing a “twist angle” by correcting the determined second twist angle based on the first twist angle in order to obtain the angle formed by the first reference axis and the clamp axis; and

(8) outputting, in an unspecified manner, the determined “twist axis” between the first reference axis and the clamp axis;

since as one of ordinary skill at the time the invention was made would fairly and reasonably recognize the recited invention lacks a positive recitation of any structure that could implement the functions of the recited program or code or instructions stored on the media so as to provide a concrete and tangible practical and substantial credible utility because the recited “computer readable media” can not by itself realize the function of the recited program.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 17 when taken as a whole as being directed to nothing more than a manufacture/article that is intended to be a machine/process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed



requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.12 In regard to the limitations of independent/base claim 18, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 18 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “deformed shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an clamp axis at each clamped node/location”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 18 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the main wire member with out twisting and a first reference axis at the location of each clamped node/branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific

machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 18 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “twist free plane” of the wire like structure by interconnecting the references axes when the wire shape model is deformed and then superimposed on the wire deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 18 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting or displaying, in an unspecified manner, the determined “twist free plane” in combination with the deformed shape and the clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Art Unit: 2863

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 18 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.13 Regarding the additional subject matter recited as dependent claim 19, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed subject matter as being directed to both (A) nonfunctional descriptive material that does not go beyond merely defining the nature/source of the recited data/information that is to be used when performing the recited processing; and (B) functional descriptive material that does not go beyond defining the nature of the steps/actions that are used when performing the recited functions of processing or gathering of data/information and hence does not alter the statutory nature of the invention recited as the invention in the base claims.

8.1.3.14 In regard to the limitations of independent/base claim 20, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an first clamp axis at each branching node/location”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the

invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “main wire reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the main wire member with out twisting and a first reference axis at the location of a clamped node/branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “first twist free plane” of the wire like structure by interconnecting the first references axes when the main wire member shape model is deformed and then superimposed on the main wire member deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time

the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fourth data/information representing a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an second clamp axis at each branching node/location”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

E) the fifth action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating fifth data/information representing a “sub wire reference shape model”, that describes the sub wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the sub wire member with out twisting and a second reference axis at the location of a clamped node/branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the

invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

F) the sixth action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating sixth data/information representing a “second twist free plane” of the wire like structure by interconnecting the second references axes when twist of the first reference axes are propagated to the second reference axes and the sub wire shape model is deformed and then superimposed on the main wire deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

G) the seventh action performed as recited in process claim 20 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting or displaying, in an unspecified manner, the determined “first twist free plane” and the determined “second twist free plane” in combination with the “first clamp axis” and the “second clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 20 when taken as a whole as being directed to nothing more than a process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.15 In regard to the limitations of independent/base claim 21, it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the first structure recited in machine claim 21 as being a positive recitation of a structure that is directed to nothing more than a structure for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating first data/information representing a “deformed shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an clamp axis at the location of each clamped node/branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

B) the second structure recited in machine claim 21 as being a positive recitation of a structure that is directed to nothing more than a structure for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating second data/information representing a “reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the main wire member with out

twisting and a reference axis at the location of a clamped node/branch”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

C) the third action performed as recited in process claim 21 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of generating third data/information representing a “twist free plane” of the wire like structure by interconnecting the references axes when the wire shape model is deformed and then superimposed on the wire deformed shape model”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is positively recited as being provided as input for use by latter processing that is positively recited as being performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

D) the fourth action performed as recited in process claim 21 as being a positive recitation of an action that is directed to nothing more than an action for performing the data/information gathering/processing function of “using an unspecified machine/process to perform the data/information gathering/processing function of outputting or displaying, in an unspecified manner, the determined “twist free plane” in combination with the deformed shape and the clamp axis”, since as recited the data/information that is gathered/produced by the performing the recited function (1) is not positively recited as being provided as input for use by latter processing that is positively recited as being



performed either internally or externally of the recited invention; and (2) is not positively recited as being processed/gathered by any specific machine or process that would be interpreted by one of ordinary skill at the time the invention was made as positively performing any other function beyond the function recited as data/information gathering/processing.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 21 when taken as a whole as being directed to nothing more than a machine for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.16 In regard to the limitations of independent/base claim 22 it is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) the structure recited in manufacture/article claim 22 as being directed to nothing more than a positive recitation of the structure of a memory that has the characteristic feature of containing a program or code or instructions as “non-functional descriptive material” that is intended to perform a data/information gathering/processing functions of:

(1) generating first data/information representing a “deformed shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a clamp axis at each clamped node/location;

(2) generating second data/information representing a “reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the main wire member with out twisting and a first reference axis at the location of each clamped node/branch;

(3) generating third data/information representing a “twist free plane” of the wire like structure by interconnecting the references axes when the wire shape model is deformed and then superimposed on the wire deformed shape model; and

(4) outputting or displaying, in an unspecified manner, the determined “twist free plane” in combination with the deformed shape and the clamp axis; since as one of ordinary skill at the time the invention was made would fairly and reasonably recognize the recited invention lacks a positive recitation of any structure that could implement the functions of the recited program or code or instructions stored on the media so as to provide a concrete and tangible practical and substantial credible utility because the recited “computer readable media” can not by itself realize the function of the recited program.

Hence, one of ordinary skill at the time the invention was made could fairly and reasonably interpret claim 22 when taken as a whole as being directed to nothing more than a manufacture/article that is intended to be a machine/process for the abstract gathering and manipulation of data/information with out either: (1) a transformation of the collected and data/information into something other than data/information, or (2) a claimed practical application of the results of the gathering and manipulation of data/information, or (3) claimed requirement that any of the recited structures or actions are present or would perform any function for any purpose not related to the manipulation of data/information.

8.1.3.17 The invention recited in claims 1-11, 13-15 & 17-22 recites an action/structure that one of ordinary skill at the time the invention was made would fairly and reasonably recognize as implying the performance of the function of outputting, for example displaying, the results of some of the processing of claims to an operator/user by using the phrase “outputting” or “displaying”. However, this recitation is deemed to be an insignificant concrete and tangible practical application of the result of the processing recited in these claims because one of ordinary skill at the time the invention was made would fairly and reasonably recognize the claimed invention fails to positively require that the displayed data/information be used in any manner to achieve the utility of the invention. As set forth above one of ordinary skill at the time the invention was made could fairly and reasonably interpret claims 1-11, 13-15 & 17-22 as

Art Unit: 2863

being directed to nothing more than a process/machine that is directed to a process/machine comprising nothing more than actions and structures that function to provide:

A) insignificant data/information gathering since the actions/structures as recited in the claims are merely directed to nothing more than performing the function of gathering data/information for use in the processing that is latter recited in the claim, see In re RICHMAN, 195 USPQ 340 at 344 (CCPA 1977);

B) insignificant data/information processing, since the actions/structures as recited in the claims are merely directed to nothing more than performing the function of processing the gathered but fails to positively recite a concrete and tangible application of the results of the processing, see In re WARMERDAM, 31 USPQ2d 1745 at 1758-1759 (CAFC, 1994), and STATE STREET BANK AND TRUST CO. v. SIGNATURE FINANCIAL GROUP INC., 38 USPQ2d 1596 at 1602 (CAFC 1998); and

C) the presentation of the results, since the actions/structures as recited in the claims are merely directed to nothing more than performing the function of displaying the gathered and/or processed data/information without positively reciting any requirement that the results of the processing be used by anyone or anything.

In view of the above fact situation of the applied Court precedent, it is noted that when considering the same fact situation as set forth above in regard to the claimed invention the Court has determined that a claim that is directed to nothing more than the abstract idea of collecting data/information and/or processing data/information and/or displaying/presenting the results of the gathering and processing of data/information to a user/operator is non-statutory, see (A) claim 5 of In re ABELE and MARSHALL, 214 USPQ 682 at 688 (CCPA 1982), which recited data/information processing and then displaying/presenting of the results of the data/information processing to a user and which the Court held was to be directed to non statutory subject matter; and (B) whereas a claim that collected, processed, and then used the results of the processing to perform another task outside of the processing by applying the results of the recited processing to perform another function in DIAMOND v. DIEHR AND LUTTON, 209 USPQ 1 at 11 (US SupCT, 1981), was held by the Court to be directed to statutory subject matter. Hence, the mere displaying of the results of processing as recited in the pending claims is deemed to not provide a concrete and tangible result for the results of the processing that is recited in the claims.

Art Unit: 2863

8.1.4 In view of the above characterization of claims 1-11, 13-15 & 17-22 it can clearly be seen that, as these claims would be fairly and reasonably interpreted by one of ordinary skill at the time the invention was made, the language used to describe the invention merely would fairly and reasonably convey to one of ordinary skill at the time the invention was made a description of an invention that does not go beyond the gathering and manipulation or processing of data/information and therefor the language used to describe the claimed invention merely sets forth the abstract ideas of collecting or gathering data/information and the transformation of the collected/gathered data/information by processing/manipulating the data/information into another representation of the collected/gathered data/information, for example transforming numbers to numbers without:

A) requiring by explicitly reciting and achieving a claimed requirement that the results of the claimed invention be tangibly used in anyway by anyone or anything in order to achieve either:

(1) a concrete and tangible useful result; or

(2) a concrete and tangible useful practical application of either:

(a) the recited mathematical processing; or

(b) the resultant numbers/data produced by the claimed invention;

or

B) reciting and achieving a physical transformation of one thing into something else.

Such a claimed invention, that one of ordinary skill at the time the invention was made would fairly and reasonably interpret as consisting solely of data collection and processing or manipulating data/information, whether:

A) the claimed invention is drafted as a machine or process or manufacture/article; and

B) no matter how useful the claimed invention may appear one of ordinary skill at the time of the invention;

is deemed to be directed to an attempt by applicant to patent an abstract idea of collecting and processing/manipulating data/information which would preempt all uses of the claimed collecting and processing of data/information that is recited as the claimed invention and

therefore as set forth by the Court the claimed invention is deemed to be directed to non-statutory subject matter, see either (A) DIAMOND v. DIEHR AND LUTTON, 209 USPQ 1 at 8 (US SupCT, 1981), citing GOTTSCALK v BENSON ET AL., 175 USPQ 673 (US SupCT, 1972), and PARKER v FLOOK, 198 USPQ 193 (US SupCT, 1978), at pages 7-8; or (B) In re WARMERDAM, 31 USPQ2d 1745 at 1758-1759 (CAFC, 1994); or (C) STATE STREET BANK AND TRUST CO. v SIGNATURE FINANCIAL GROUP INC., 38 USPQ2d 1596 at 1602 (CAFC 1998); or (D) In re RICHMAN, 195 USPQ 340 at 344 (CCPA 1977); or (E) In re MAUCORPS, 203 USPQ 812 @ 815-816 (CCPA 1979), citing both In re JOHNSON, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978), and In re FREEMAN, 573 F.2d at 1247, 197 USPQ at 472. Note also “Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process. In practical terms, claims define nonstatutory processes if they: – consist solely of mathematical operations without some claimed practical application (i.e., executing a “mathematical algorithm”); or – simply manipulate abstract ideas, e.g., a bid (Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application.” MPEP 2106, 2106.01 & 2106.02.

8.2 Claims 13, 17 & 22 are rejected under 35 U.S.C. 101 because the claimed invention is inoperative to achieve a substantial and credible utility and hence is directed to non-statutory subject matter.

8.2.1 It is noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) claims 13, 17 & 22 are directed to a manufacture/article/item that is defined by it's characteristics/features/components that when taken as a whole defines the manufacture/article/item.

B) claims 13, 17 & 22 directed to a storage device containing “program” or “code” or “instructions” per se as set forth by applicant in the preamble and hence these claims recite steps/actions that are intended to perform the associated functions with out a positive recitation of a structure or action that one of ordinary skill at the time the invention was made would recognize as being capable of achieving the recited functions

and hence the recited invention when taken as a whole does not define either a process or machine, see MPEP 2106, 2106.01 & 2106.02, and In re CHATFIELD, 191 USPQ 730 @ 736 (CCPA 1976), or a machine, see In re ALAPPAT, 31 USPQ2d 1545 at 1558 (CAFC 1994).

8.2.2 It is further noted that as one of ordinary skill at the time the invention was made would fairly and reasonably interpret:

A) claims 13, 17 & 22 when taken as a whole are directed to a manufacture/article/item that is intended to achieve the claimed substantial and credible utility of determining the “twist angel” of a wire-like structure/bundle.

D) claims 13, 17 & 22 when taken as a whole are directed to a “program” or “code” or “instructions” per se as a process/machine/manufacture that by itself can not achieve the claimed substantial and credible utility of determining the “twist angel” of a wire-like structure/bundle since as one of ordinary skill at the time the invention was made would recognize these claims fail to positively recite the structure that would be necessary to implement the functions of the recited “program” or “code” or “instructions” so as to achieve the disclosed and recited utility of the claimed invention.

8.2.3 In regard to the pending claim and when taking each claim as a whole and interpreting the claims, one of ordinary skill at the time of the invention would make the following observations in regard each of the limitations of the claims, that:

A) claims 13, 17 & 22 recite an intended utility of determining the “twist angel” of a wire-like structure/bundle for the “program for” or “code for” or “instructions for” that are stored as non-functional descriptive material on/in “a computer readable media” or “a recording media” in claims 13, 17 & 22 as a manufacture/article in claims 13, 17 & 22 that is intended to perform the substantial and credible functions necessary in order to achieve the utility of determining the “twist angel” of a wire-like structure/bundle;

B) the invention as recited in claims 13, 17 & 22 is intended to perform the one or more recited functions that have been recited for the stored “program for” or “code for” or “instructions for” that has been stored on/in “a computer readable media” or “a recording media” as the claimed invention in order to achieve the desired intended substantial and credible utility of the disclosed invention, however the invention as

recited, would be interpreted as clearly failing to positively recite any type of limitation that would be interpreted by one of ordinary skill at the time the invention was made as requiring the operation of any machine/process to be affected in anyway by the recited functions of the of the claimed invention in order to achieve the desired intended substantial and credible utility of the disclosed and claimed invention;

C) in regard to the body of claims 13, 17 & 22, as applicant has recited the claimed invention has:

(1) set forth a “software program” or “code” or “a manufacture” in claims 13, 17 & 22 comprising “computer program for” or “code for” or “instructions for” performing one or more intended functions that would be associated with the functions required to achieve the substantial and credible utility of the disclosed and claimed invention; and

(2) failed to set forth either (a) a specific machine that would operate in a specific manner by executing the recited “program” or “codes” so as to produce a new machine, see In re ALAPPAT, 31 USPQ2d 1545 at 1558 (CAFC 1994), or (b) a process of operating a machine to perform the recited functions of the “program” or “code”, see In re CHATFIELD, 191 USPQ 730 @ 736 (CCPA 1976), and

D) neither (1) the data/information that represents either the “computer program for” or “code for” or “instructions for”; nor (2) the computer readable media or memory device or recording media alone, that applicant has recited as the claimed invention, can produce a concretely and tangibly result that would be required for the recited functionality of the claimed invention.

Hence, as one of ordinary skill at the time the invention was made would recognize, the language of the claims merely recites functions that the program/code or data/information is intended to accomplish as the invention but fails to recite any positive limitation that would be interpreted by one of ordinary skill at the time the invention was made as a positive recitation that would permit the functionality of the recited program or code or instructions or data/information stored on the computer readable media or memory device or recording media to produce the required concrete and tangible result that would be associated achieving the substantial and credible utility of the

disclosed and claimed invention. Therefore, one of ordinary skill at the time the invention was made would recognize that the positively recited functions for the “code” or “program” or “instructions” are in fact non-functional descriptive material/data/information upon which patentability can not be based, “Cf. In re GULACK, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983) (when descriptive material is not functionally related to the substrate, the descriptive material will not distinguish the invention from the prior art in terms of patentability). Common situations involving nonfunctional descriptive material are: ... - a computer that differs from the prior art solely with respect to nonfunctional descriptive material that cannot alter how the machine functions (i.e., the descriptive material does not reconfigure the computer), or - a process that differs from the prior art only with respect to nonfunctional descriptive material that cannot alter how the process steps are to be performed to achieve the utility of the invention. Thus, if the prior art suggests storing a song on a disk, merely choosing a particular song to store on the disk would be presumed to be well within the level of ordinary skill in the art at the time the invention was made. The difference between the prior art and the claimed invention is simply a rearrangement of nonfunctional descriptive material.” MPEP 2106, 2106.01 & 2106.02.

8.2.3.1 As a final note in this regard the claimed invention positively recites that the “computer program for” or “code for” or “instructions for” are intended to cause a computer to perform the recited functions. However, since the computer is not positively recited as executing the or is under the control of the “computer program for” or “code for” or “instructions for” recited as the invention this language is deemed to be a non-functional recitation of a non-limiting intended field of use that may not limit the scope or meaning of the claimed invention.

8.2.4 In view of the above characterization of claims 13, 17 & 22 it can clearly be seen that, these claims would be reasonably interpreted by one of ordinary skill at the time the invention was made, as merely conveying to one of ordinary skill at the time the invention was made a description of an invention that merely sets forth the concept of a manufacture/article comprising data/information that has been stored/recorded in/on the manufacture/article in some manner is a program or code or instructions, where the recited memory/manufacture/article alone, that is by itself, can not realize the disclosed and claimed credible and substantial utility as set forth by applicant.



Art Unit: 2863

8.2.5 Such a claimed invention would be recognized by one of ordinary skill at the time the invention was made, as describing a claimed invention that is not operative to achieve the disclosed and claimed credible and substantial utility as set forth by applicant and that has been held by the court to be non-statutory subject matter, see In re SARKAR, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978).

9. Response to applicant's arguments.

9.1 The objections and rejection that have not been repeated here in have been over come by applicant's last response.

9.1.1 In regard to the repeated objections to the drawings and to the written description the as set forth above by the Examiner, these objections have been maintained since applicant failed to make all of the required amendments to the written description in order to conform the drawings and/or written description to be consistent with the written description and/ or drawings, respectively.

9.2 In regard to the rejection of claims 1-11, 13-15 & 17-22 under 35 U.S.C. 101 applicant's arguments are deem non persuasive and this rejection has been maintained in view of the respective modified rejection as set forth above and the following considerations.

9.2.1 In understand the rejection of claims 1-11, 13-15 & 17-22, then how claims are to be interpreted must first be addressed.

9.2.1.1 It is from the perspective of one of ordinary skill at the time the invention was made that the scope and meaning of the claimed invention when taken as a whole would be fairly and reasonably interpreted and determine because:

A) as clearly set forth by the courts and in the MPEP, the pending claims of any application are interpreted by giving the language of every positively recited limitation of the pending claims the broadest fair and reasonable interpretation that is consistent with how one of ordinary skill at the time of the invention would have interpreted the language of the claims, In re CORTRIGHT, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999), while (1) taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification, In re MORRIS, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997), and (2) without reading any limitations from applicant's disclosure in to the

claimed invention that have not been explicitly recited as being part of the claimed invention, In re PRATER AND WEI, 162 USPQ 541 at 551 (CCPA 1969) “We are not persuaded by any sound reason why, at any time before the patent is granted, an applicant should have limitations of the specification read into a claim where no express statement of the limitation is included in the claim.”;

B) it has been well established that the interactions of claim limitations as a whole must be considered in order to determine the scope of a claimed invention and hence what is applicant’s contribution in the art, because a statutory process/machine/manufacture must contain an explicitly recited operative series of actions and/or structures, In re MUSGRAVE, 167 USPQ 280 at 289-290 (CCPA 1970), that include an explicit recitation all of all of the necessary interactions that one of ordinary skill at the time the invention was made would recognize as being essential to achieving or accomplishing the recited utility of the claimed invention, In re MAYHEW, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976), since without these interactions the claim as a whole would not be a proper process/machine under the statute, In re SARKAR 200 USPQ 132 at 136 (CCPA 1978); and

C) there are limits to what may be reasonably and fairly interpreted as the claimed invention based on what one of ordinary skill at the time the invention was made would fairly and reasonably interpret, based upon the guidance provided by the written description as being equivalent to a claimed action or structure since the machine/process would perform the same function. However, in view of the fact that applicant has gone to great lengths in the written description to describe each of the positively recited claimed structures or actions that have been recited in the limitations of the claimed invention by using a written description that:

(1) does not describing a specific structure or a specific action to provide a recited function; and

(2) merely describing the claimed structures or actions by describing the function of each of the claimed structures or actions;

then, it is noted that as set forth by the Court each of the limitations of the claims would fairly and reasonably be interpreted by one of ordinary skill at the time of the invention as

Art Unit: 2863

being not limited solely to the structures or actions that would exactly correspond to what has been described in the written description for the claimed structures or actions, but in fact would include any structure or action that would be reasonably and fairly interpreted as performing the claimed function.

9.2.1.2 Further based on the above, although it is conceivable that one of ordinary skill may know of many different actions/structures that would usefully and beneficially be operative to achieve the positively recited functions for the structures and actions positively recited as being part of the claimed invention, since one of ordinary skill at the time the invention was made would fairly and reasonably interpret the language used to describe the claimed invention as:

A) failing to positively recite the antecedent structures or antecedent actions that one of ordinary skill at the time the invention was made would have fairly and reasonably recognized as being required to achieve any function then these missing antecedent structures or actions may not be attributed to the claimed invention; and

B) failing to positively recite the actual structures or actions that are to be used as part of the claimed invention, then one of ordinary skill at the time the invention was made would have recognized that any type of structure or action that would achieve the recited function could be used without being limited to the disclosed structures and/or actions that are not recited and therefore may not be attributed to the claimed invention.

9.2.1.3 In conclusion, it can clearly be seen from the above that the scope and meaning of the claimed invention is to be fairly and reasonably interpreted and determined to include any and all structures or actions that from the perspective of one of ordinary skill at the time the invention was made would be fairly and reasonably interpreted as performing the corresponding functions that have been recited as being part of the claimed invention, and not from the perspective of what applicant intends to be the scope and meaning of the claimed invention.

9.2.2 Now the prevailing case law will be discussed.

9.2.2.1 In regard to the rejection of claims 1-11, 13-15 & 17-22 under 35 U.S.C. 101, as set forth above, it is noted that:

A) unclaimed useful applications/utilities of claimed subject matter as described in the written description may not be imparted to the claimed invention from the disclosure, see In re PRATER AND WEI, 162 USPQ 541 at 551 (CCPA 1969); and

B) although there is a large amount of subject matter, that may be patentable as a machine, process, composition of matter or manufacture under 35 U.S.C. 101, the Court has recognized that:

(1) there are some types of subject matter that is excluded from being proper subject matter for patent protection under 35 U.S.C. 101, such as laws of nature, physical phenomena, and abstract ideas, see DIAMOND v. DIEHR AND LUTTON, 209 USPQ 1 at 8 (US SupCT, 1981); and

(2) even the subject matter that is excluded from patent protection under 35 U.S.C. 101 may become proper subject matter for a patent under 35 U.S.C. 101 where the claimed invention goes beyond merely the manipulation of excluded subject matter, see GOTTSCHALK v BENSON ET AL., 175 USPQ 673 (US SupCT, 1972) and PARKER v FLOOK, 198 USPQ 193 (US SupCT, 1978), at pages 7-8; and

C) the Court has provided some guidance in determining if a claimed invention goes beyond the mere manipulation of excluded subject matter by recognizing that for a claimed invention to go beyond the mere manipulation of excluded subject matter and thereby to become proper subject matter for patent protection under 35 U.S.C. 101, then from the point of view of one of ordinary skill that the time the invention was made the claimed invention must be interpreted as including a positive recitation of a structure or an action that performs a function that would be interpreted by one of ordinary skill as either:

(1) providing a credible concrete and tangible substantial useful application of the results of the claimed manipulation of excluded subject matter, see In re WARMERDAM, 31 USPQ2d 1745 at 1758-1759 (CAFC, 1994) and STATE STREET BANK AND TRUST CO. v SIGNATURE FINANCIAL GROUP INC., 38 USPQ2d 1596 at 1602 (CAFC 1998); or

(2) going beyond merely reciting a particular field of use for the claimed manipulation of excluded subject matter, see DIAMOND v. DIEHR AND LUTTON, 209 USPQ 1 at 11 (US SupCT, 1981); or

(3) going beyond merely reciting insignificant activity after the manipulation of excluded subject matter, see DIAMOND v. DIEHR AND LUTTON, 209 USPQ 1 at 11 (US SupCT, 1981); or

(4) going beyond merely reciting insignificant activity that as claimed would only provide data/information to the claimed manipulation of excluded subject matter, see In re RICHMAN, 195 USPQ 340 at 344 (CCPA 1977);

Where it is noted that the Court has deemed the displaying of the results of a manipulation of excluded subject matter as being an insignificant activity after the manipulation, note claim 5 which displayed the results of a manipulation of excluded subject matter was held to be non-statutory, see In re ABELE and MARSHALL, 214 USPQ 682 at 688 (CCPA 1982); and

D) the Courts have further recognized that the above guidance regarding proper subject matter for patent protection under 35 U.S.C. 101 applies to both process and machine claims alike, see In re MAUCORPS, 203 USPQ 812 @ 815-816 (CCPA 1979) and In re JOHNSON, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) and In re FREEMAN, 573 F.2d at 1247, 197 USPQ at 472.”

E) where computer readable media are concerned the Courts and the Patent Office have had the following additional comments:

(1) that data structures by definition are not programs, “(The definition of “data structure” is “a physical or logical relationship among data elements, designed to support specific data manipulation functions.” The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).)”, see also MPEP 2106, 2106.01 & 2106.02;

(2) concerning statutory subject matter, as set forth in the following quote, the computer program running on a computer makes the computer a different machine, see In re ALAPPAT, 31 USPQ2d 1545 at 1558 (CAFC 1994), “We have held that such programming creates a new machine, because a general

purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.”;

(3) a computer program is not a statutory process because the program alone can not bring about a useful result without being claim as being executed by a computer, see MPEP 2106, 2106.01 & 2106.02 and note that nonfunctional data stored in a memory device is non-statutory, see “When nonfunctional descriptive material is recorded on some computer-readable medium, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make it statutory. Such a result would exalt form over substance. In re SARKAR, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978)”;

(4) that a computer readable media containing data/information that would cause a useful function to be performed when claimed in conjunction with a computer in such a manner that the functionality recited as the invention can be realized are statutory, see MPEP 2106, 2106.01 & 2106.02 and In re BEAUREGARD, 35 USPQ2d 1383 (CAFC 1995), and note the corresponding claims of Beauregard et al (5,710,578).

9.2.3 Now based on the above requirements of claim interpretation and the prevailing case law, Applicant's arguments will be discussed.

9.2.3.1 In regard to applicant's arguments regarding the nature of the subject matter recited as the invention in claims 1-11, 13-15 & 17-22 as the arguments relate to the outstanding rejection of claims 1-11, 13-15 & 17-22, the examiner notes that:

A) applicant has interpreted the claimed invention from the perspective of an insider, that is applicant or the inventor who knows what they mean to say, and not from the perspective of an outsider, that one of ordinary skill at the time the invention was made, since applicant seems to be reading unclaimed distinctions and merits from the written description into the claimed invention that are not positively recited as being part of the claimed invention and therefore do not limit the scope or meaning of the claimed

invention as set forth in precedent of In re PRATER AND WEI, 162 USPQ 541 at 551 (CCPA 1969), *supra*;

9.2.3.2 In view of points (A) through (D) set forth above in the case law:

A) applicant's arguments have not provided any evidence, beyond unsupported ascertains regarding the interpretation of unclaimed limitations, that would tend to support a conclusion that invention as recited in claims 1-11, 13-15 & 17-22 would fairly and reasonably be interpreted by one of ordinary skill at the time the invention was made as positively reciting anything more than actions/structures that are solely directed to performing the functions of gathering and processing data/information without a concrete and tangible practical application of the results of the recited processing; and

B) as set forth above by the examiner in the rejection of claims 1-11, 13-15 & 17-22, the claimed invention would be fairly and reasonably interpreted by one of ordinary skill at the time the invention was made as merely conveying a positive recitation of an invention that does nothing more than perform the acts/functions of gathering and processing data/information with out a concrete and tangible practical application of the results of the recited processing, because as one of ordinary skill at the time the invention was made would fairly and reasonably interpret the claimed invention as lacking a positive recitation that would be fairly and reasonably interpreted as requiring that the data/information that is the result of the positively recited gathering and processing of data/information is to be used/applied in a concrete and tangible manner by the claimed invention or an external machine/process as the invention is currently defined by the language used to recite the limitations of the claimed invention;

and therefore the claimed invention as recited in these claims would be fairly and reasonably interpreted by one of ordinary skill to include scope that is deemed to be solely directed to the excluded subject matter of the "abstract idea" of collecting and manipulating data/information that would preempt any and all uses of the recited processing.

9.2.3.3 In view of points (A) though (E) set forth above in the case law and applicant's arguments have not provided any evidence, beyond unsupported ascertains regarding the interpretation of unclaimed limitations, that would tend to support a conclusion that invention as recited in claims 1-11, 13-15 & 17-22 would be interpreted by one of ordinary skill at the time

Art Unit: 2863

the invention was made as positively reciting anything more than non-functional descriptive material stored on a “computer readable media” that can not operatively and usefully perform the described acts of gathering and processing data/information, these claims are deemed to be direct to non-statutory subject matter.

9.2.3.4 To put the above discussion in more concise terms, unless the results of the claimed gathering and processing of data/information ARE REQUIRED TO BE USED BY SOMEONE OR SOMETHING IN ORDER TO ACHIEVE the utility of the claimed invention, then one of ordinary skill at the time the invention was made would ask the question:

A) WHAT CONCRETE AND TANGIBLE PRACTICAL APPLICATION OR USE WOULD RESULT FROM PERFORMING THE POSITIVELY RECITED HYPOTHETICAL EXERCISES OF GATHERING AND PROCESSING OF DATA/INFORMATION AS RECITED IN THE CLAIMS, IF THE RESULTANT DATA/INFORMATION IS NOT REQUIRED TO BE KNOWN AND USED IN ANYWAY.

B) WHAT USE OR FUNCTION WOULD THE DATA/INFORMATION THAT IS STORED ON THE COMPUTER READABLE MEDIA HAVE IF THE STORED DATA/INFORMATION IS NOT EXECUTED OR USED BY A MACHINE/PROCESS SO THAT IT WILL CHANGE OR ALTER THE OPERATION OR FUNCTION OF THE MACHINE/PROCESS.

9.2.3.5 Applicant is reminded that as the COURT has held and as set forth in the MPEP, an invention that does not go beyond merely manipulating data/information in the abstract is directed to NON-STATUTORY subject matter regardless of whether one of ordinary skill at the time the invention was made would recognize how useful the results of the claimed invention may be, or to what use the results of the claimed invention may be put to achieve a desired utility.

9.2.3.6 In regard to applicant's arguments regarding an alleged “concrete and tangible result or practical application” for the claimed invention and an alleged transformation. As set forth in the above rejection by the examiner one of ordinary skill at the time the invention was made would fairly and reasonably interpret the language used to define the scope of the claimed invention, see the above guidelines of claim interpretation, to be merely directed to nothing more



than a general recitation of actions and/or structures that, as positively recited with in the claimed invention, merely function to perform unspecified types of data/information gathering and/or processing functions that merely collect or gather and then process the collected data/information by merely rearranging or sorting the collected/gathered data/information into a different representation of the collected/gathered data/information without transforming or changing the collected/gathered data/information into some other type of data/information that would represent something other than just a mere rearrangement or sorting and/or display of the collected data/information. In view of this fair and reasonable interpretation by one of ordinary skill at the time the invention was made of the language used by applicant in order to define the scope of the claimed invention and the fact that the claimed invention was made clearly fails to positively recite either an application of the results of the claimed invention or the exact data/information processing that is to be used as part of the claimed invention, then the scope of the claimed invention would not fairly and reasonably permit two or more separate skilled artisans, that are not working together, to make and/or use the same invention because each skilled artisan would fairly and reasonably be permitted to use different types of gathering and processing of data/information as part of the claimed invention and then apply the results of the gathering and processing of data/information in different ways in order to achieve different practical applications. Therefore, the invention does not have a “concrete and tangible result or practical application” for the claimed invention and or perform a transformation of one thing in to some else, and hence applicant’s arguments are deemed to be non persuasive.

9.2.3.6.1 Further, in regard to claims 13, 17 & 22, since it is noted that these claims fail to require that the stored program or code on the storage media is to be executed or run by the computer in order for the computer to implement the functions of the code, then this merit of the disclosed invention may not be attributed to the claimed invention of In re PRATER AND WEI, 162 USPQ 541 at 551 (CCPA 1969), *supra*.

9.2.3.7 As a final note, as argued by the examiner above, the preamble and each limitation of the claimed invention can be fairly and reasonably interpreted by one of ordinary skill at the time the invention was made to be directed to subject matter that does not go beyond the abstract ideas of performing the function of gathering data/information as numbers and/or performing the function of processing the gathered data/information into other data/information

Art Unit: 2863

or numbers that merely represent a characterization the originally gathered data/information. In view of this reasonable interpretation, the invention when taken as a whole can be fairly and reasonably interpreted by one of ordinary skill at the time the invention was made as being solely directed to subject matter that does not go beyond the abstract ideas of performing the functions of gathering data/information and/or processing data/information with out performing either:

A) the transformation of gathered data/information into something else; or

B) the practical application of the data/information that results from the claimed gathering and processing of data/information in a concrete and tangible manner to provide a credible and substantial utility.

Such an invention, that has either: (1) a disclosed but unclaimed credible and substantial practical application; or (2) a disclosed but unclaimed transformation of data/information into something else; or (3) a disclose but unclaimed utility, regardless of how useful it may appear to one of ordinary skill at the time the invention was made, is not directed to statutory subject matter.

10. The following is a statement of reasons for the indication of allowable subject matter over the prior art:

A) the prior art, for example:

(1) Nath discloses that it is useful and beneficial to use a finite element analysis in order to simulate a beamed element.

(2) either Sakaura et al (EP 1267284 A2 or EP 1267285 A2 or EP 1267286 A2 or JP 2002-373533 A or 2003/0020711 or 2003/0020715 or 6,842,173) disclose a machine/process that provides the useful and beneficial function of designing wiring harnesses by dividing the wiring harness into segments and overlaying each of the segments of the harness over one another in order to simulate the final 3 dimension shape of the wiring harness.

B) however, the prior art does not fairly teach or suggest in regard to claims 1 & 13 a process in claim 1 and a machine/article in claim 13 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 1 and structures in claim 13 that perform at least the functions of:

(1) generating first data/information representing a “deformed shape model”, that describes the main wire bundle of a wire-like structure as a series of one or more beam elements/sections that are clamped with clamp structures at predetermined locations and a clamp axis at each location of a clamp and/or branch of a sub wire of the wire-like structure axis;

(2) generating second data/information representing a “reference shape model”, that describes the wire-like structure as a couple member of one or more beam elements and further includes reference axis at each location of a clamp and/or branch of a sub wire of the wire-like structure axis;

(3) generating third data/information representing a shape of the wire like structure by using a finite element analysis in order to considering the shape and material properties of the wire like structure while “deforming the reference shape model” and superimposing the “deformed reference shape model” on the “deformed shape model”;

(4) generating fourth data/information representing a “twist angle” by evaluating the “deformed reference shape model” to determine the resulting angle formed between the “reference axis” and the “clamp axis” and/or “virtual clamp axis”; and

(5) outputting, in an unspecified manner, the determined “twist axis”.

Claims 2-4, which depend from claim 1, are allowable over the prior art for the same reason.

C) however, the prior art does not fairly teach or suggest in regard to claim 5 a process in claim 5 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 5 that perform at least the functions of:

(1) generating a “finite element model” of a wire like structure by describing the wire-like structure as a series of one or more coupled elastic beam elements/sections;

(2) generating a “reference shape in a plane” of the wire like structure in a plane by using a finite element model that considers the shape and material

properties of the wire-like structure in order to deform the wire-like structure to the reference shape;

(3) generating a “twist angle” as the angle formed between the plane and the sub wire bundle structures; and

(4) outputting the determined “twist axis”.

Claims 6-11, which depend from claim 5, are allowable over the prior art for the same reason.

D) however, the prior art does not fairly teach or suggest in regard to claims 14 & 17 a process in claim 14 and a machine/article in claim 17 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 14 and structures in claim 17 that perform at least the functions of:

(1) generating a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a branching axis of a sub wire bundle at the location of a branch;

(2) generating a “main wire reference shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a first reference axis for a sub wire bundle at the location branch node;

(3) generating a “first twist angle of the main wire” formed by the difference between the first reference axis and the branch axis after having used finite element analysis to consider the shape and material properties of the wire like structure and after superimposing the deformed shape mode on the main wire member;

(4) generating a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a clamp axis of a sub wire bundle at the location of a branch;

(5) generating a “sub wire reference shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been straight stretched with out twisting and a second reference axis at the location of a clamp;

(6) generating a “second twist angle of the sub wire” formed by the difference between the second reference axis and the clamp axis after having used finite element analysis to consider the shape and material properties of the sub wire like structure and after superimposing the deformed sub wire shape mode on the deformed sub wire shape model;

(7) generating a “twist angle” by correcting the determined second twist angle based on the first twist angle in order to obtain the angle formed by the first reference axis and the clamp axis; and

(8) outputting, in an unspecified manner, the determined “twist axis” between the first reference axis and the clamp axis.

E) however, the prior art does not fairly teach or suggest in regard to claim 15 a process in claim 15 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 15 that perform at least the functions of:

(1) generating a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a series of one or more coupled beam elements/sections and a first branch axis of a sub wire bundle at the location of a branch;

(2) generating a “main wire reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections that have been obtained by straight stretching a main wire member with out twisting and a first reference axis at the location of a branch;

(3) generating a “first twist angle of the main wire” between first reference axis and the first branch axis by using finite element analysis to consider the shape and material properties of the wire like structure and superimposing a

deformed main wire reference shape mode on the main wire deformed shape model;

(4) generating a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a second branch axis of a sub wire member at the location of a branch;

(5) generating a “sub wire reference shape model”, that describes the sub wire member of the wire-like structure as a coupled series of one or more reference beam elements/sections of straight stretching of the main wire structure with out twisting and a second reference axis at the location of a branch;

(6) generating a “second twist angle” of the sub wire member as the angle between second reference axis and the second branch axis by using finite element analysis that considers the shape and material properties of the wire like structure and superimposing a deformed sub wire reference shape mode on the sub wire deformed shape model;

(7) generating a “twist angle” by correcting the determined second twist angle based on the first twist angle in order to obtain the angle formed by the first reference axis and the second branch axis; and

(8) outputting, in an unspecified manner, the determined “twist axis” between the first reference axis and the second branch axis.

F) however, the prior art does not fairly teach or suggest in regard to claims 18, 21 & 22 a process in claim 18, a machine in claim 21, and a article/machine in claim 22 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 18 and structures in claims 21 & 22 that perform at least the functions of:

(1) generating a “deformed shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and a clamp axis at each clamped node/location;

(2) generating a “reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam

elements/sections obtained by straight stretching of the main wire member with out twisting and a first reference axis at the location of each clamped node/branch;

(3) generating a “twist free plane” of the wire like structure by interconnecting the references axes when the wire shape model is deformed and then superimposed on the wire deformed shape model; and

(4) outputting or displaying, in an unspecified manner, the determined “twist free plane” in combination with the deformed shape and the clamp axis.

Claim 19, which depends from claim 18, is allowable over the prior art for the same reason.

G) however, the prior art does not fairly teach or suggest in regard to claim 20 a process in claim 20 that provides the useful and beneficial function of determining the twist angle for a wiring harness by providing actions in claim 20 that perform at least the functions of:

(1) generating a “main wire deformed shape model” that describes the main wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an first clamp axis at each branching node/location;

(2) generating a “main wire reference shape model”, that describes the main wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the main wire member with out twisting and a first reference axis at the location of a clamped node/branch;

(3) generating a “first twist free plane” of the wire like structure by interconnecting the first references axes when the main wire member shape model is deformed and then superimposed on the main wire member deformed shape model;

(4) generating a “sub wire deformed shape model” that describes the sub wire member of a wire-like structure as a coupled series of one or more beam elements/sections and an second clamp axis at each branching node/location;

(5) generating a “sub wire reference shape model”, that describes the sub wire member of a wire-like structure as a coupled series of one or more reference beam elements/sections obtained by straight stretching of the sub wire member with out twisting and a second reference axis at the location of a clamped node/branch;

(6) generating a “second twist free plane” of the wire like structure by interconnecting the second references axes when twist of the first reference axes are propagated to the second reference axes and the sub wire shape model is deformed and then superimposed on the main wire deformed shape model; and

(7) outputting or displaying, in an unspecified manner, the determined “first twist free plane” and the determined “second twist free plane” in combination with the “first clamp axis” and the “second clamp axis.”

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward R. Cosimano whose telephone number is 571-272-0571. The examiner can normally be reached on 571-272-0571 from 7:30am to 4:00pm (Eastern Time).

11.1 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow, can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11.2 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ERC  
06/20/2008

**/Edward Cosimano/  
Primary Examiner Unit 2863**